

Arizona Department of Water Resources
GROUNDWATER USERS ADVISORY COUNCIL
Tucson Active Management Area
Kenneth Seasholes, Area Director



DEE T. O'NEILL
Chair

DAVID MODEER
Vice-Chair

JOHN MAWHINNEY

JON POST

CHUCK SWEET

Minutes
December 7, 2004

Members Present:

David Modeer, Vice Chair
John Mawhinney
John Post
Chuck Sweet

Staff Present:

Kenneth Seasholes, Area Director
Christina Bickelmann, TAMA
Brian Conway, Hydrology Division
Laura Grignano, TAMA
Diane Kusel, TAMA
Scott Miller, Phoenix AMA
Jeff Tannler, TAMA
Dawne Wilson, TAMA

Others:

Mark Anderson, USGS
Tom Berry, Pima County Wastewater Mgmt.
Janet Lea Carr, SAWUA
James Davis, Errol L. Montgomery & Assoc.
Justin Ferris, WRRRC
Alan Forrest, Oro Valley Water Utility
John Hoffman, USGS
Eric Holler, Bureau of Reclamation
Tina Lee, Ward 2 Council Office
Ries Lindley, Tucson Water
Val Little, Water Casa
Frank Postillion, PCFCD
Bill Richardson, Pima County Wastewater Mgmt.
David Schmerge, USGS
Warren Tenney, Metro Water District
Kristen Zimmerman, PAG

1. Call to Order

David Modeer called the December 7, 2004 meeting to order.

2. Approval of Minutes

John Mawhinney made a motion to approve the minutes of November 10, 2004. Chuck Sweet seconded the motion. The minutes were unanimously approved.

3. USGS Monitoring of Subsidence and Aquifer Storage Change

Kenneth Seasholes began the meeting by stating that in previous meetings the GUAC had expressed interest in learning more about ongoing monitoring activities in the AMA. He explained that Mark Anderson of the USGS was in attendance to give the GUAC an update on one such project. This particular project is being partially funded by the Tucson AMA's conservation augmentation fund.

Mark Anderson began by saying that the USGS has been monitoring aquifer-storage change in the Tucson and Avra Valley area since 1998. The work is done using instruments called gravimeters that can detect change in gravity as a result in an increase or decrease of water in a particular area. He added that this is the first time that an entire aquifer system is being monitored on a regular basis. Mr. Anderson introduced David Schmerge who conducts the project work.

Mr. Schmerge gave a brief PowerPoint presentation on the project results. There are a number of cooperating agencies associated with this project: City of Tucson, Arizona Department of Water Resources, Town of Marana, Town of Oro Valley and Metro Domestic Water Improvement District. Pima County has participated in the past.

Mr. Schmerge briefly described how the gravity measurements are used to monitor aquifer storage change. Gravity is affected by both mass and elevation changes. By measuring gravity, as well as land subsidence, researchers can calculate approximate water storage changes.

The different types of instruments used to measure gravity are a relative gravimeter and an absolute gravimeter. The relative gravimeter works by comparing two or more measurements of gravity. The relative gravimeter is the main instrument that the USGS has been using for this project; however, they have recently started using an absolute gravimeter that measures actual gravity at a particular point in time. Researchers can attach a GPS unit to this instrument and thereby measure land subsidence simultaneously. This instrument costs approximately a quarter of a million dollars and will likely be the future of gravimetry.

Mr. Schmerge presented a number of maps showing the results of the project over the last five years. All of the maps presented could be found on the USGS website. The first map illustrated elevation changes in TAMA over a five year period (1998-2002). The average rate of subsidence during this time was on the order of 1 inch per 15 months. This is similar to rate of subsidence during the early to late 1990s. The maximum subsidence between 1998 and 2002 was 3.5 inches and occurred south of Valencia and west of 6th.

Next a series of maps showed different AMA locations and their associated net aquifer storage change over several years: Avra Valley from Spring 2002 to Spring 2004 with a 70,000 acre-feet net storage increase (some of this gain may be due to a nearby recharge site), the Marana area from Spring 2003 to Summer 2004 with a 20,000 acre-feet net storage decrease, the Tucson Basin from Winter/Spring 2002 to Spring 2003 with a zero net storage change, the Tucson Basin from Spring 2003 to Summer 2004 with a 100,000 net storage decrease and the same area again from Winter 2000 to Summer 2004 with a net storage decrease of 200,000 acre-feet.

Mr. Schmerge went on to say that a number of new benchmarks have been added in the Avra Valley, Sahuarita and Upper CDO areas. These areas have shown interesting results and increasing the benchmarks in these areas should improve the monitoring data collected. Even with the newly added benchmarks, Mr. Schmerge believes that because of the new technology available to the project, the absolute gravimeter and attached GPS, they should be able to continue the project with the same budget. Mr. Schmerge proposed future funding levels by ADWR at the \$20,000 level. In the past ADWR was able to fund the project at that level, however; last year, due to limited funds, ADWR funded only \$12,500.

John Mawhinney asked how long subsidence has been monitored in the Tucson area. Mr. Anderson said that Tucson Water has been measuring subsidence here for many years, although state of the art subsidence measuring has been more recent. Mr. Mawhinney said that the project results presented today only reinforces the idea that we should do more artificial recharge in areas where water is withdrawn. He added that although the subsidence measured in the Tucson area is nowhere near the levels measured at Luke Airforce Base, urban infrastructure, sewer systems, etc. can be adversely effected by extremely small changes. Mr. Mawhinney asked if CAP monitors subsidence around the canal. David Modeer explained that CAP does have a monitoring program. Eric Holler explained that the canal was built to handle a certain amount of subsidence. Mr. Anderson added that Tucson doesn't experience as much subsidence as other areas of the state because the majority of its sediments are not the fine grain sediments that tend to lead to subsidence under dewatered conditions.

4. ADWR's Enhanced Monitoring Efforts in the Tucson AMA

Subsidence Monitoring

Mr. Seasholes introduced Brian Conway from ADWR's Hydrology Division. Mr. Conway displayed an interferogram, which is an image based on minute differences between pairs of radar satellite images made of the same area, but at different times. He explained that each full color band represented 2.8 cm of deformation or change (this could be uplift or subsidence) and areas of the interferogram where the images could not be correlated are shown in black. Based on the location of the rings or fringes, the greatest amount of change has occurred in the Central Basin where there has been a lot of historical pumping. The second map presented was produced from the most recent satellite passes; however, due to poor weather conditions in the Tucson area at the time of the second pass, the interferogram was not very useful. Mr. Conway mentioned that atmospheric variation can affect the ability to detect deformation on a small scale (mm). Finally, Mr. Conway showed an interferogram of the San Manuel Mine.

Mr. Conway mentioned that funding for future work would be an issue, especially since ADWR's NASA grant recently ended. He added that they have applied for an extension so that they can receive data until May 2005. After this date ADWR will start doing this work in house and will need to cover the cost of this program (\$20,000-\$50,000) itself. He mentioned that there was a good possibility that partnerships with interested cities and CAP may materialize to help offset some of the costs.

Crop Use Survey

Ken Seasholes explained that the Tucson AMA is piggybacking on work that began in the Pheonix AMA. This program was designed to greatly improve ADWR's knowledge of the agricultural sector. There are two main reasons for collecting crop use data: to improve planning efforts and to improve the accuracy of ADWR's water budgets. Currently we have a wealth of water use data from the collection of annual reports but we have never been able to collect crop use data. This lack of information has hampered modeling efforts as well as efforts to analyze crop use trends. By coordinating satellite data with actual field verification, detailed crop use maps can be generated. John Mawhinney asked Mr. Seasholes whether or not ADWR has ever asked for crop use data from the farmers. Mr. Seasholes said yes; however, this information has long been considered propitiatory in nature by the sector and not something that ADWR should collect.

Hydrologic Monitoring

The AMA has had a well level monitoring program in place for a long time. The next major hydrologic sweep of the Tucson index wells is scheduled to take place sometime next year. In addition to this ongoing effort we have slowly been rolling out transducers. These transducers were paid for through the money that the GUAC recommended for improved monitoring. The real time water level data is relayed to satellites that can then be pulled off our web site. This information is helpful in understanding precise water level changes due to natural recharge, etc.

5. Regional Issues and Governor Napolitano's Listening Session

Mr. Seasholes reported that the Tucson Governor's Water Listening Session is scheduled for next Tuesday, December 14 at the Pima Community College Downtown Campus. It will start at 5 o'clock not 5:30 as previously announced. Mr. Seasholes encouraged attendance since both the Governor and her staff will be present.

Mr. Seasholes showed photos taken at the Phoenix Listening Session in order to give everyone an idea of how the event was set up. Tucson's session will be similarly set-up. Unfortunately attendance was poor at the Phoenix session but may have been the result of the Governor's absence due to her surgery the day before. The Phoenix session began with time for the public to walk around information booths manned by agency section and division heads and was then followed by the listening portion. A panel made up of Rita Pearson, Herb Guenther, Alan Stevens (the Governor's Chief of Staff) and Lori Faith (Natural Resources Advisory to the Governor) listened to the public's questions and comments on both the drought plan and general water issues.

Mr. Seasholes said that there was an interest at the last GUAC in coordinating the regional statements/issues that would be presented by regional water groups. He added that the Listening Session would be a good opportunity to put forth a clear regional vision for the Tucson area. At the last meeting there was an understanding that entities such as SAWUA and Water Casa would meet and try to coordinate their statements. Mr. Seasholes stated that since the November GUAC meetings two formal meetings had taken place as well as several informal meetings to discuss these issues.

Mr. Seasholes referred the GUAC to a preliminary draft of *Potential Regional Issues/Topics for Governor's Listening Tour* that he developed. In addition to this regional list, he developed a brief summary of the issues that the GUAC, in particular, might want to address. Issues included in this summary were the GUAC's concern that the goal of Safe Yield may not be reached by 2025, as well as the hope that there is an enhanced ability to tailor ADWR's programs to local conditions in the Tucson AMA.

John Mawhinney began the discussion by asking whether or not the statements being prepared by the local water groups will cover Tucson's top four or five issues. It was decided that before the GUAC could determine if certain topics were covered, the group would have to identify the issues that it felt were most important to the Tucson area. Val Little encouraged the GUAC to identify the top five issues that the GUAC saw as most important in the AMA. The GUAC decided on the following list of TAMA priority issues: 1) Concern that Safe Yield is not going to be met (emphasize need for more renewable supplies in the region), 2) Conservation (emphasize the need for more funding), 3) ADWR funding (again emphasize the need for adequate funding), 4) Recovery and Recharge Planning (emphasize that recharge should occur in or close to area of hydrologic impact of pumping), 5) Closing the Firming Gap (emphasize the need for more water and money to meet the firming gap).

The GUAC members acknowledged that some of these issues were interrelated like Conservation and ADWR funding. Mr. Modeer stated that without the proper funding ADWR could not function as was intended, especially when it came to funding conservation efforts. Warren Tenney added that the GUAC should stress in its statement that money collected for conservation should be spent only on conservation and not other things like ADWR staffing. He also mentioned the importance of conveying to the Governor the many ways in which Tucson is different from the other AMAs.

There was a brief discussion on the appropriate length of the GUAC statement that Dee O'Neill would present to the Governor. Some members of the public suggested that since Mr. Mawhinney had the original idea of the GUAC coordinating local statements that he should be the official spokesperson for the GUAC at the Listening Session. Mr. Mawhinney explained that he would be speaking on behalf of the Governor's Water Management Commission about all the work that has been done on water issues. It was decided that staff would write a one to two page summary statement, to be read by Ms O'Neill, which would cover the five issues identified by the GUAC. Each topic would be given a minute or so. Accompanying this statement would be one-page summaries on each of the five issues with brief recommendations on how the Governor could assist the Tucson AMA in these areas. These supplemental pages would be given to the Governor to read later. Mr. Seasholes added that he would reference the many efforts that have

taken place over the last few years on these topics. It was agreed that Mr. Seasholes and staff would develop these papers and send them out to the GUAC members for comments before next Tuesday.

Chuck Sweet questioned how much good would likely come from the Governor's Listening Sessions and wondered if a similar effort to educate the legislature would be more beneficial. Other members of the GUAC agreed that future efforts to educate the local legislative representatives on important regional water issues would be beneficial; however, most thought it was also very important to educate the Governor on water issues, especially now that she is seeking input.

Mr. Mawhinney expressed hope that the GUAC take on a stronger presence than it has in recent years. Although in recent years the GUAC's focus has been on allocating a dwindling conservation fund, Mr. Seasholes stated that historically it took on more of an advisory role to the Department.

6. Area Director's Report

Mr. Seasholes reported that a letter from the GUAC was sent to the Water Bank in response to their proposed Draft 2005 Plan. The letter requested that the Bank reconsider the amount of water that it planned to deliver in 2005 to the Pima Mine Road Facility, based on the IPAC recommendations. The letter also expressed the GUAC's interest that interstate banking take place in the Tucson AMA if more water should become available.

Mr. Seasholes announced that the Bank just informed him that there would be last minute 2004 interstate water available for storage in the Tucson AMA, somewhere between 6,000 -10,000 AF. The water will most likely be stored at the Avra Valley and Lower Santa Cruz facilities because they still have sufficient storage capacity. Mr. Seasholes added that this interstate storage in this area would benefit the AMA in several ways: it allows for more storage in the AMA, it helps spread storage costs and it precipitates the need to figure out how to recover this water while Nevada foots the bill. In the future Mr. Seasholes stated that there will be more time to plan where interstate storage will occur, however this year it happened at the last minute. Mr. Mawhinney stated that this 2004 storage was taking place in Tucson because of the AMA's efforts to make it happen.

Mr. Seasholes introduced Scott Miller from the Phoenix ADWR office. Mr. Miller is heading up the efforts to develop new Well Spacing Rules. Mr. Miller began by saying that the stakeholders group has had two meetings so far. Two subcommittees were initially created, one to deal with the technical issues the other to deal with the socio-political issues, but were merged into one once it was realized that the same people attended both subcommittee meetings and the discussions centered on the same issues. The next subcommittee meeting will be held on December 20th at 1:30 pm. The stakeholders will eventually develop a concept paper that will be forwarded to the Department to use in developing the well rules. This rule packet will then be submitted to GRRC in Spring 2006. Mr. Miller suggested that anyone that was interested in finding out more about this process should go to ADWR's web site or give him or Jeff Tannler their email address.

Mr. Seasholes then announced that there have been a number of informal meetings with the area providers about potential reforms to the municipal conservation program. Once concepts start to materialize they will be brought forth to the GUAC for their consideration.

He also mentioned the Arizona Town Hall, which focused its efforts on water issues this year, produced quite a substantive product worth taking a look at.

Mr. Seasholes stated that, due to a number of factors, local water issues were once again heating up. Starting at the next GUAC, Mr. Seasholes would like to begin a dialogue about where local water providers stand in terms of utilizing their CAP allotments and the issues associated with CAP utilization.

Chuck Sweet asked if the USGS folks could do a similar presentation for the Town of Oro Valley. Mr. Modeer said that they probably would since they come to council meetings on a regular basis. Mr. Seasholes added that it is the end of their fiscal year and they are looking for funding partners for the project. If the GUAC wanted to fund this project in 2005 it would need to be listed as an action item and would most likely occur at the end of the state's fiscal year (in the summer). On a related matter, Mr. Seasholes added that he recently became aware of a session law passed in 2004 that allowed conservation funds to be swept for general uses. He was unsure how this might affect the amount of money available for future projects.

At upcoming meetings Mr. Seasholes said that the GUAC would be taking a closer look at the Tucson AMA water budget projections (briefly presented at the November meeting), listening to local municipal providers about how they are planning for the future and hearing from the agricultural sector on the future of farming in the AMA.

7. Public Comment

There was no public comment.

8. Date and Agenda for Next Meeting

The next meeting of the GUAC will be held on Thursday, January 13, 2005 at 9:00 a.m.

9. Adjournment

The meeting was adjourned at 11:00 a.m.